



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

APPLICATION No.: 10/797,796
FILED: March 10, 2004
APPLICANTS: Steven Aoyama
TITLE: MOLD FOR A GOLF BALL

GROUP ART UNIT: 3711
EXAMINER: Raeann Gordon
ATTY. DOCKET No.: B03-25

Ex parte: Aoyama
Appeal No. _____

BRIEF ON APPEAL

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APPEAL BRIEF

Mail Stop Appeal Brief – Patents

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

This appeal is from the Final Office Action mailed May 17, 2006 finally rejecting the pending claims. A Notice of Appeal was timely filed on July 19, 2006 under the provisions of 37 CFR § 1.192. This Brief is being filed under the provisions of 37 CFR § 1.192.

10/06/2006 AWONDAF1 00000070 502309 10797796

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1. **REAL PARTY IN INTEREST**

Acushnet Company is the assignee of the present patent application. Acushnet Company is a Delaware corporation with headquarters in Fairhaven, Massachusetts. Acushnet Company is a fully owned subsidiary of Fortune Brands, Inc. Fortune Brands, Inc. is a Delaware corporation with headquarters in Lincolnshire, Illinois.

2. **RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences known to Appellants, Appellants' legal representative, or Assignee that will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

3. **STATUS OF CLAIMS**

Claims 17, 19 and 21-27 are pending and subject to this appeal. Claims 17, 19, and 21-27 were rejected in the final Office Action dated May 17, 2006. The Applicant appeals the final rejection of claims 17, 19 and 21-27. The claims pending at the time of the final rejection are attached as Appendix A.

4. **STATUS OF AMENDMENTS**

The amendments filed on March 3, 2006, in response to the Office Action mailed December 15, 2005, were entered by the Examiner, as noted in the Final Office Action mailed May 17, 2006.

The response to the Final Office Action mailed May 17, 2006, contained no amendments. As such, the claims on appeal are 17, 19, and 21-27, as amended on March 3, 2006.

5. **SUMMARY OF INVENTION**

Historically, golf ball covers were manufactured by placing two hemispherical cover pieces and compression molding them over a golf ball component which resulted in a seam created along the "equator" of the ball. Inherent in this compression process was the production of flashing, which is excess cover material oozing out at the seam. This flashing had to be removed by buffing or other means and it was difficult to remove

the flashing if it was located within the dimples of the ball cover. Therefore older generation golf balls seldom had dimples located along the equator, and over the years some golfers felt that this seam was a weak link in performance characteristics. Some manufacturers introduced a so-called "seamless" ball, although this was just a marketing ploy, for there was still a seam, just not along the equator and therefore harder to detect. The real problem created by the lack of dimple space along the equator is the lack of dimples which can translate reduced performance. The present invention provides a golf ball that not only gives the illusion of a seamless appearance, but provides increased dimple space.

Referring to FIGS. 7-12, as defined by the presently pending claims and, in particular, independent claim 17, the invention is generally directed to a molded golf ball 40 (which may include a core, core layers, and/or intermediate layers, and at least one cover layer), having a novel parting line configuration in the location of the equator which is indicated by 41. The novel parting line configuration is described as the superposition of a base waveform λ_1 with a substantially shorter secondary waveform λ_2 . See, e.g., Written Description at Page 8, line 4-9.

In accordance with the invention, the base waveform has a wavelength of $\lambda_1 = \pi D/n$, where D is the diameter of the spherical mold cavity and n is an integer that depends on the dimple pattern, usually between 3 and 6. In other words λ_1 is generally 1/3, 1/4, 1/5, or 1/6 the circumference of the mold cavity. The secondary waveforms λ_2 are shorter wavelengths that are generally between 1/4 and 1/12 of λ_1 . *Id.* at page 8, lines 10-14.

It is important to note that the base waveform λ_1 makes an integral number of cycles around the equator or seam area of the molded golf ball 40. The specific number of cycles is dependent upon the geometric characteristics of the dimple pattern. For example, octahedron-based patterns typically employ a sub-pattern of dimples that is repeated four times around the equator of the ball. In cooperation with this, the base waveform will have four repetitions of its cycle in one trip around the equator, giving it a wavelength of 1/4 of the circumference of the ball. However, icosahedron-based patterns which are shown in the present invention, usually have a five fold repetition around the equator, thus for the present invention they will usually employ a base

waveform having a wavelength $1/5$ the circumference of the ball. *Id.* at Page 8, lines 15-24.

FIGS. 7, 9, and 11 show three embodiments of icosahedron-based dimple patterns, each with a different base waveform λ_1 . The dashed lines delineate the dimple pattern segments that repeat five times around each hemisphere, as is typical for icosahedron patterns. Thus, each of these base waveforms completes five cycles around the equator area of the ball ($\lambda_1 = \pi D/5$). *Id.* at Page 8, lines 25-29. FIGS. 8, 10, and 12, show what the parting lines of FIGS. 7, 9 and 11 respectively, will look like when there is a secondary waveform λ_2 super-positioned upon the base waveform λ_1 . *Id.* at Page 9, lines 24-28. Please note how the base waveform λ_1 shown in FIGS. 7, 9, and 11, intersects at least some of the dimples on the ball. *Id.* at Page 9, lines 12-13. It is to be appreciated that if a ball were to be made with the parting line intersecting dimples then flashing would occur at these dimple sites, which as discussed above creates finishing problems. *Id.* at Page 9, lines 14-15. Thus the creation of a “seamless” type golf ball without any intersection of the dimples is critical to the present invention. In FIG. 8, the secondary waveform λ_2 is approximately $1/6$ of the base waveform λ_1 of FIG. 7, while in FIGS. 10 and 12, the secondary waveform λ_2 is approximately $1/7$ of λ_1 . The superposition of these shorter waveforms permits the parting line to weave between and around the individual dimples and thus not to intersect any of them. *Id.* at Page 9, lines 17-18).

Each of the embodiments shown in FIGS. 7, 9, and 11 respectively exhibits a different dimple pattern. FIG. 7 shows a row of dimples centered along the equator of the ball with the base waveform λ_1 having a squared-off shape, alternating generally above and below the equator row of dimples. *Id.* at Page 9, lines 1-3. FIG. 9 shows an icosahedron-based pattern that does not have a row of dimples centered on the equator. Rather, it has a row of dimples on either side of the equator that is non-latitudinal or “wavy” in nature. One row residing predominantly in one hemisphere, while the other row residing predominantly in the other hemisphere. This embodiment employs a base waveform with a zig-zag shape. *Id.* at Page 9, lines 4-8. Finally, FIG. 11 shows an icosahedron dimple pattern, but with a different base waveform than that

of FIG. 9. In this example, the waveform is made up of arch-shaped sections connected by segments that run coincident with the equator. *Id.* at Page 9, lines 9-11.

FIGS. 8, 10, and 12, show the completed parting lines 42 that result from the superposition of shorter secondary waveforms λ_2 upon the base waveforms λ_1 of FIGS. 7, 9, and 11 respectively. It is to be appreciated, that unlike the base waveforms λ_1 alone, the completed parting lines do not intersect any dimples and in fact maintain a spaced relationship from the dimple edges. All the embodiments of the present invention have the base waveforms λ_1 follow the dimple pattern, while the shorter waveforms λ_2 follow the contour of the individual dimples. *Id.* at Page 9, lines 17-28. A golf ball having such a parting line is not taught in the prior art.

The novel parting line of the invention maximizes dimple space while allowing the interdigitation of dimples across the equator or the ball.

6. ISSUES

The issues presented are:

(1) whether the Examiner has established under 35 U.S.C. 102(b) that each and every element as set forth in claims 17, 19, and 21-23 are anticipated by U.S. Patent 5,840,351 to Inoue *et al*;

(2) whether the Examiner has established under 35 U.S.C. 102(b) that each and every element as set forth in claims 17 and 21-23 are anticipated by U.S. Patent 4,653,758 to Solheim;

(3) whether the Examiner has established under 35 U.S.C. 102(b) that each and every element as set forth in claims 17 and 21-24 are anticipated by U.S. Patent 5,249,804 to Sanchez; and

(4) whether the Examiner has established a prima facie case of obviousness under 35 U.S.C. 103(a) in rejecting claims 25 and 26, as being unpatentable over Inoue ('351) and Solheim ('758) each in view of U.S. Publication 2002/0019274 to Sajima (now U.S. Patent No. 6,540,6250).

7. GROUPING OF CLAIMS

Claims 17, 19, and 21-27 should be reviewed on appeal. The independent claim 17, and the dependent claims 19, and 21-27, should be considered as a group and should stand or fall together. Appellant's arguments will therefore, be directed to claims 17, 19, and 21-27

8. ARGUMENT

(1) Claims 17, 19, and 21-23 were rejected under 35 U.S.C. § 102(b) as as being anticipated by Inoue, as the Examiner set forth in the Final Office action mailed May 17, 2006. The Examiner specifically addressed this rejection on page 2 of the Final Office Action, as cited below:

“Claim 17, Inoue discloses a golf ball comprising a corrugated parting line offset from the equator, which does not intersect or interfere with the dimples edges (fig 3). Claim 18, the dimples create a seamless appearance by appearing on either side of the corrugated parting line. Claim 19, the parting line is offset from the equator by at least 0.1mm or 0.004 inch. Claim 20, the parting line creates a plurality of peaks and valleys. Claims 21-23, as understood by the Examiner, the parting line is a continuous waveform around the equator.”

Applicants respectfully submit that the Examiner has not established a rejection under 35 U.S.C § 102(b), and has, therefore, erred in the rejection of appealed claims 17, 19, and 21-23 for the reasons fully-developed below.

In the above rejection, claims 18 and 20 have been rejected by the Examiner, although they were previously cancelled in response to the first Office Action. Since they were incorporated into claim 17, the Applicants have responded the rejections as if they were part of the rejection of claim 17.

In the fig 3 of Inoue, a corrugated parting line (6) is shown that is entirely above the ball equator (5). This is an atypical concept that is not even contemplated in the present invention, wherein the parting lines are centered on the equator so that they exist in equal parts on both sides of the equator. Also, the middle section of Inoue's fig.3 is not offset from the dimples, and it clearly intersects and interferes with several dimple edges. Furthermore, Applicants are very specific in claim 17 that the parting surface not only corresponds to the equator region, but that it interdigitates with the dimples on both sides of the equator. Inoue clearly does not suggest this.

In rejecting claims 21-23 the Examiner stated that Inoue shows a continuous waveform around the equator. This does not suggest Claim 21 of the present invention which recites that the Applicants' corrugated parting line is a result of a superposition of a base waveform with a substantially shorter secondary waveform. As described in the specification at page 9, lines 15-23, this is a critical inventive concept, because the parting line of the Applicants golf ball is a composite of a base waveform that follows the dimple pattern of the ball and a shorter secondary waveform that follows the individual dimples. (Specification at Page 9, lines 21-23) Clearly, the Applicants have claimed much more than just a waveform around the equator, and there is nothing in the Inoue specification to teach this.

For claims to be rejected under 35 U.S.C. § 102(b), each and every element as set forth in the claims of the present invention must be found, either expressly or inherently, in a single prior art reference. Applicants respectfully submit that Inoue does not disclose all the elements of the claimed invention.

(2) Claims 17 and 21-23 were rejected under 35 U.S.C. § 102(b) as as being anticipated by Solheim. The Examiner addressed this rejection on pages 2 of the Final Office Action, as cited below:

"Claims 17 and 21-23 are rejected under U.S.C. 102(b) as being anticipated by Solheim (4,653,758). Claim 17, Solheim discloses a golf ball comprising a corrugated parting line, which does not intersect or interfere with the dimple edges (fig.6). Claim 18, the dimples create a seamless appearance by appearing on either side of the corrugated parting line. Claim 20, the parting line creates a plurality of peaks and valleys. Claims 21-23, as understood by the examiner, the parting line is a continuous waveform around the equator."

Applicants respectfully submit that the Examiner has not established a rejection under 35 U.S.C § 102(b), and has, therefore, erred in the rejection of appealed claims 17 and 21-23 for the reasons fully-developed below.

The rejection of already cancelled claims 18 and 20 has been treated as above.

Solheim shows a corrugated parting line which appears on both sides of the equator, but clearly the dimples in Solheim, while they appear on both sides of the equator, are not interdigitated and that is critical to the Applicants invention.

As in the above rejection, the Examiner has rejected claims 21-23 based on the parting line being a continuous waveform around the equator, with no directives as to the parting line being established as a result of super-positioning a short secondary waveform into a longer base waveform such that the base waveform follows the dimple pattern of the ball and the shorter secondary waveform follows the individual dimples. Again, the Applicants respectively submit that this is a novel concept that is not suggested in the Solheim patent.

For claims to be rejected under 35 U.S.C. § 102(b), each and every element as set forth in the claims of the present invention must be found, either expressly or inherently, in a single prior art reference. Applicants respectfully submit that Solheim does not disclose all the elements of the claimed invention.

(3) Claims 17 and 21-24 were rejected under 35 U.S.C. § 102(b) as as being anticipated by Sanchez. The Examiner addressed this rejection on page 3 of the Final Office Action, as cited below:

“Claim 17, Sanchez discloses a golf ball comprising a corrugated parting line, which does not intersect or interfere with the dimple edges (fig. 2). Claim 18, the dimples create a seamless appearance by appearing on either side of the corrugated parting line. Claim 20, the parting line creates a plurality of peaks and valleys. Claims 21-23, as understood by the Examiner, the parting line is a continuous waveform around the equator. Claim 24, the dimples create an icosahedron dimple pattern.”

Applicants respectfully submit that the Examiner has not established a rejection under 35 U.S.C § 102(b), and has, therefore, erred in the rejection of appealed claims 17 and 21-24 for the reasons fully-developed below.

The parting line shown in Sanchez is of the same scope as taught by Solheim and again there is no interdigitation across the parting line shown in the Sanchez patent, and also the parting line of Sanchez is not based upon mathematical radii with a super-positioning of a shorter waveform with a longer waveform. Please note how in the Applicant's specification, the parting line shown in FIG. 7 is based on a particular dimple pattern (in this embodiment an icosahedral pattern) and the waveform creates this. Next, look at FIG. 8 and note how a shorter waveform, one that follows not the dimple pattern, but the contour of the dimples themselves has been created to allow the

dimples to interdigitate across the parting line itself. This maximizes the dimple space available, which we have stated is of vital important to golf ball performance. The patent to Sanchez does not disclose a waveform to the dimple pattern and then superposition a much shorter waveform that corresponds to the geometry of the individuals dimples. In fact Sanchez shows huge gaps of wasted space along the corrugated parting line (as does Solheim above).

The Applicants acknowledge that claim 24 is patentable only because it is based upon a patentable base claim and further limits a patentable base claim.

For claims to be rejected under 35 U.S.C. § 102(b), each and every element as set forth in the claims of the present invention must be found, either expressly or inherently, in a single prior art reference. Applicants respectfully submit that Sanchez does not disclose all the elements of the claimed invention.

(4) Claims 25 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Inoue and Solheim (each) in view of Sajima. The Examiner addressed this rejection on page 3 of the Final Office Action, as cited below:

“Claims 25 and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Inoue and Solheim (each) in view of Sajima (2002/0019274). The primary references do not disclose an octahedral or cube-octahedral dimple pattern. Sajima teaches a golf ball comprising octahedral or cube-octahedral dimple patterns. One of ordinary skill in the art would modify the dimple pattern for enhanced flight performance.”

Appellants respectfully submit that the Examiner has not established a *prima facie* case of obviousness and has, therefore, erred in the rejection of appealed claims 25 and 26 for the reasons fully-developed below.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference must suggest to one of ordinary skill in the art that they should make the claimed invention. *In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, one of ordinary skill in the art must have a reasonable expectation of success in making the claimed invention based on the revelations contained in the prior art reference. *Id.* Finally, the prior art reference must teach or suggest all the claim limitations. *Id.* The suggestion to make the claimed invention and

the reasonable expectation of success in making it must be found in the prior art reference and not in Applicant's disclosure. *Id.*

While Sajima teaches of a golf ball comprising octahedral or cube-octahedral dimple patterns that are cited in claims 25 and 26, Sajima does not cure the deficiencies of the base references Inoue or Sanchez to reject the base claim 17, therefore a *prima facie* case of obviousness has not been established. The primary references, Inoue and Sanchez, do not teach the claim limitations of the base claim 17, and the Applicants acknowledge that claims 25 and 26 are only patentable by virtue of their dependence from the independent claim 17 and that they further define the base claim.

9. CONCLUSION

In accordance with the authority set forth above, and for the facts and reasons fully developed herein, Appellants respectfully request that the decision of the Examiner be reversed in its entirety.

Respectfully submitted,



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Date: Oct 4, 2002

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APPENDIX A: PENDING CLAIMS

1-16 (Cancelled)

17. (Previously presented) A golf ball having a pattern of dimples and a corrugated parting line on its spherical surface, the golf ball formed in a mold which has a generally spherical cavity therein and is composed of upper and lower mold cups being removably mated along a parting surface at a position corresponding to an equator region of the spherical cavity of the mold, wherein the corrugated parting line of the golf ball comprises multiple radii forming a plurality of peaks and valleys which are offset from the dimples as not to interfere with the dimple edge and the dimples on one side of the parting line interdigitate with the dimples on the other side to form a golf ball having a substantially seamless appearance

18. (Cancelled)

19. (Original) The golf ball according to claim 17, wherein the parting line along the profile of the equator dimples is offset from the equator dimples by at least 0.001 inch.

20. (Cancelled)

21. (Previously presented) The golf ball according to claim 20, wherein the corrugated parting line is a result of a superposition of a base waveform with a secondary waveform, whereby the wavelength of the secondary waveform is substantially shorter than that of the base waveform

22. (Original) The golf ball according to claim 21, wherein the secondary waveform is continuous around the equator of the molded golf ball.

23. (Original) The golf ball according to claim 21, wherein the secondary waveform is broken into individual segments that are applied in a periodic fashion to the base waveform

24. (Original) The golf ball according to claim 17, wherein the dimples of the molded golf ball are in an icosahedral arrangement pattern.

25. (Original) The mold according to claim 17, wherein the dimples of the molded golf ball are in an octahedral arrangement pattern.

26. (Original) The mold according to claim 17, wherein the dimples of the molded golf ball are in a cube-octahedral arrangement pattern.

27. (Original) The mold according to claim 17, wherein the dimples of the molded golf ball are in a dipyramid arrangement pattern.